CDC /NCID
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR INFECTIOUS DISEASES

Volume 6 / No. 5 / September – October 1997

FOCUS

Communicating NCID's prevention and control programs for new and reemerging infectious diseases

Message from the Director

Dear Colleagues:

As you may know, NCID is developing an updated emerging infectious diseases plan, which will inaugurate Phase II of our effort to mobilize and rebuild the public health infrastructure that protects the U.S. public from emerging diseases. The plan will update the initiative begun with the publication of the 1994 plan, *Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States.*

The updated plan will build on the experience, success, and knowledge we have gained over the past 4 years, reflect our current thinking about the prevention and control of infectious diseases, and address timely public health issues and research priorities. It will report on the progress we have made so far and provide a blueprint for continuing action over the next several years.

An early draft of the updated plan has been shared with NCID and CDC staff and members of the NCID Board of Scientific Counselors for input. It will be distributed to our many partners for comment over the next several months. We expect to release the updated plan in the fall of 1998.

James M. Hughes, M.D.

Focus on Viral and Rickettsial Diseases

Oral vaccination campaign launched to control raccoon rabies epizootic in Ohio

In response to an urgent request from the Ohio Department of Health this spring, scientists in the Division of Viral and Rickettsial Diseases have been assisting state and local officials with the planning, execution, and evaluation of an oral vaccination program to control the spread of rabies among raccoons in northeastern Ohio. The request was made after active surveillance efforts identified numerous rabid raccoons in the state, providing evidence that an ongoing raccoon rabies epizootic was moving westward from neighboring Pennsylvania.

Cathleen Hanlon, DVRD, examines a tracking plate during a recent site visit to Ohio. Other NCID staff who have assisted in the Ohio project are James Childs, Cherie Drenzek, Martin Meltzer, Michael Niezgoda, James Olson, Lillian Orciari, Lisa Rotz, Charles Rupprecht, Dane Sanderlin, John Shaddock, Heidi Shoemake, Jean Smith, and Pam Yager.

The incursion of the epizootic into Ohio poses a serious public health threat because of the state's large raccoon population and the tendency of raccoons to live in densely populated urban and suburban centers as well as rural areas, according to Cathleen Hanlon, veterinary medicine specialist in DVRD's Rabies Section. Dr. Hanlon adds that Ohio potentially "is the gateway to the West; once raccoon rabies becomes established in the Ohio Valley, the epizootic may spread rapidly across the Midwest."

The epizootic began in the mid-Atlantic region during the late 1970s after raccoons harboring undetected rabies virus infection were translocated from the southeastern United States, where raccoon rabies is enzootic. The first case was reported in West Virginia in 1977, and the epizootic has since spread through 14 states and the District of Columbia (5 additional southeastern states were previously affected). By 1995, raccoon rabies cases in the mid-Atlantic and Northeast regions accounted for more than 75% of all rabid raccoons identified in the United States. Although no human rabies cases have been associated with the epizootic, the numbers of people receiving postexposure prophylaxis (average cost: $1,500 per patient) for potential exposures to rabid animals have increased dramatically in affected states.

For a time, geographic barriers (Great Lakes, Appalachian

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Raccoon rabies – continued from page 1

Mountains, Ohio River) stopped the epizootic from moving west, but in May 1996 Ohio officials reported the first indigenous case of raccoon rabies, approximately 3 miles from the Ohio-Pennsylvania border. Active surveillance conducted by state and local health departments with assistance from CDC detected no other cases of raccoon rabies in Ohio during 1996; however, in March 1997 several new cases were identified, and in April a child playing in his back yard was attacked and bitten by a rabid raccoon. Within days of the attack, Ohio health officials announced plans to initiate a mass oral vaccination program targeting raccoons in the affected counties. The protocol for oral vaccination was developed in consultation with CDC.

Charles Rupprecht (R), chief of DVRD's Rabies Section, describes strategy for distributing vaccine-laden baits in Ohio.

During May and June, approximately 100,000 fishmeal vaccine-laden baits were airdropped or hand-distributed in the target areas. Each bait contains a packet of vaccinia-rabies glycoprotein recombinant virus vaccine that has been shown to be effective in raccoons and harmless to other wildlife species, domestic animals, and humans. Plans for additional distributions are under consideration. Substantial efforts have also been made to emphasize traditional rabies control measures in Ohio, including vaccination of pets, postexposure prophylaxis of people exposed to rabid animals, and public education. ■

Focus on Parasitic Diseases

West African trypanosomiasis resurging in southern Sudan

Medical Epidemiologist Anne Moore and EIS Officer Deborah Levy, Division of Parasitic Diseases, have confirmed that part of southern Sudan is experiencing a resurgence of West African trypanosomiasis, or "sleeping sickness." The disease prevalence found by the DPD team is among the highest ever documented, and control activities are urgently needed to reduce deaths.

West African trypanosomiasis is caused by the parasite *Trypanosoma brucei gambiense*, which is transmitted to humans by the bite of an infected tsetse fly, found only in Africa (tsetse flies live in dense brush like that found in Sudan). If untreated, the disease is fatal. Early symptoms of infection (stage I) include fever and swollen lymph nodes. Eventually, after a few months to a few years, the parasite invades the central nervous system (stage II), resulting in personality changes, disturbance of sleep patterns, progressive confusion, and difficulty walking and talking. Death usually occurs within a few months of central nervous system involvement. Stage I treatment involves administration of an antibiotic, which can be done on an outpatient basis; stage II treatment is much more complex and expensive, requiring hospitalization.

In May 1997, Drs. Moore and Levy went to Tambura County, Western Equatoria, Sudan, to join two nongovernmental organizations, International Medical Corps (IMC) and CARE International, in conducting a prevalence survey to verify and quantify the epidemic and to identify the geographic areas most at risk. Almost 1,400 persons in 16 villages were serologically screened and examined for the presence of the parasite. In 1988, prevalence in this area was only 0.3%; this population-based survey clearly showed that the overall prevalence is now 19.3% (as high as 45% in one area), confirming a major resurgence of the disease. The disease was found in every village surveyed.

PHOTO: Deborah Levy

Residents of Baikpa village who were screened for West African trypanosomiasis.

African trypanosomiasis is also reemerging in neighboring countries such as the Central African Republic. In the Democratic Republic of Congo (formerly Zaire), disease prevalence levels are higher than they have been in 60 years; the number of deaths in this region attributed to the disease now approaches that from AIDS. In several countries in which African trypanosomiasis is endemic, political turmoil and economic crisis have eroded the public health infrastructure necessary to keep the disease under control.

Dr. Moore is working with IMC and CARE International to construct

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Focus on Arctic Investigations

Arctic Investigations Program's new facility opens

The opening of Arctic Investigations Program's (AIP) new building, together with the new Alaska Native Medical Center, was celebrated in a festive outdoor ceremony on May 18 in Anchorage. Representing CDC in Atlanta were Claire Broome, Deputy Director, CDC, James Hughes, Director, NCID, and William Gimson, Director, Financial Management Office.

The new facility is part of a five-building medical center campus that includes the Alaska Native Medical Center, AIP, the Alaska Area Native Health Service, the Alaska Area Office of Environmental Health, and South Central Foundation's Primary Care Center. The campus is located next to the University of Alaska.

(L-R) William Gimson, Financial Management Office; Claire Broome, OD, CDC: Robert Wainwright, Division of Quarantine; James Hughes, NCID; Alan Parkinson, Ken Petersen, AIP.

Dr. Broome spoke on behalf of CDC, and Director Michael Trujillo represented the Indian Health Service. Dr. Broome acknowledged the long-standing partnership between CDC and IHS and praised IHS for its vision and commitment to disease prevention in providing CDC with a new facility. Alaska Senator Ted Stevens, keynote speaker, described the new medical center as the "crown jewel" of a comprehensive health care system in Alaska that serves not only the most remote villages but also the largest Native village in Alaska—Anchorage. Senator Stevens then noted that the combined prevention efforts of IHS, AIP, and the State of Alaska have dramatically reduced the incidence of hepatitis B in the Alaska Native communities.

Alan Parkinson, Acting Director of AIP, noted that the theme of the dedication "Journey to wellness ... our choice, our responsibility," stressed the important role of the individual in making the right decisions concerning prevention and control of disease. He stated that the new facility provides CDC/AIP with the tools to play a critical role in the future of disease prevention and control in Alaska. Current problems being addressed by AIP include antibiotic resistance of *Streptococcus pneumoniae* and *Haemophilus influenzae* and the natural history of *Helicobacter pylori* in the Alaska Native population. ■

Trypanosomiasis – continued from page 2

a plan for responding to the current outbreak in southern Sudan. Infected persons in the area must be diagnosed and treated to limit this tragedy and shrink the reservoir of infection. "If efforts begin soon," says Dr. Moore, "the disease could be brought under control within 1 to 2 years."

For a fact sheet on West African trypanosomiasis and a map showing the disease-endemic region, visit the World-Wide Web at http://www.cdc.gov/ncidod/diseases/trypan/fsaftry.htm. ■

Partners in Prevention

This column features NCID's collaborative programs.

After working successfully with NCID during the hantavirus outbreak in 1993, Reckitt & Coleman (R&C) with G. S. Schwartz & Co. Public Relations is again partnering in a public education effort with NCID. A project team representing each of the center DPOs with staff from R&C and G. S. Schwartz has been working since January 1996 to develop a campaign to increase behaviors that prevent transmission of infectious diseases. The team used input from focus groups of women with young children and health care providers to develop messages and materials.

The campaign, "An Ounce of Prevention Keeps the Germs Away," emphasizes seven infectious disease prevention behaviors – wash your hands, clean and disinfect surfaces, handle and prepare food safely, get immunized, use antibiotics appropriately, keep pets healthy, and avoid contact with wild animals. The campaign centerpiece is a 30-minute video in the format of a television news magazine anchored by Monica Kaufman, local Atlanta news personality. It can be used as one unit or shown in three short segments for clinic or classroom discussion. A poster and pamphlet will supplement the video.

Video and audio news releases on the campaign will be distributed in Spring 1998. A sample package of the materials with ordering information then will be sent to public health departments, schools, clinics, and other sites that have infectious disease education programs.

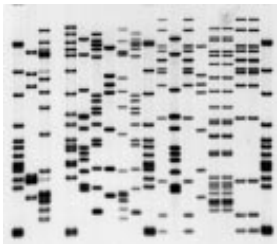
For additional information, contact the NCID Office of Health Communication. ■

Focus on AIDS, STD, and TB Laboratory Research

National Tuberculosis Genotyping and Surveillance Network

Identifying different and related strains of *Mycobacterium tuberculosis* is necessary for designing and implementating effective TB prevention and control measures. Earlier TB identification methods only identified strains with unusual biochemical or drug-resistance characteristics. More recently, researchers have used DNA fingerprinting to more accurately differentiate TB strains: those with identical or nearly identical DNA fingerprint patterns are considered closely related. Typing strains by *M. tuberculosis* restriction fragment length polymorphism has proven to be a powerful tool in epidemiologic studies of TB transmission, and an internationally standardized methodology has been established for analysis of DNA fingerprint patterns produced in many different laboratories.

CDC is currently funding a project involving regional DNA fingerprinting laboratories and sentinel surveillance sites. CDC staff involved in the project include Jack Crawford from the Division of AIDS, STD, and TB Laboratory Research, NCID, and Christopher Braden and Barbara Schable from the Division of Tuberculosis Elimination, NCHSTP. This project, called the "National Tuberculosis Genotyping and Surveillance Network," includes the establishment of 1) a computerized national database of *M. tuberculosis* DNA fingerprinting images and their respective fingerprint designations and 2) a database consisting of epidemiologic information from selected TB patients in the United States. Both of these databases are located and managed at CDC. Dr. Crawford is the project officer for the laboratory component of the project, and Dr. Braden is the project officer for the epidemiologic component. Ms. Schable serves as the Network Coordinator and is responsible for maintaining both databases as well as working directly with the regional laboratories and sentinel surveillance sites.



RFLP patterns of M. tuberculosis

Based on established criteria, seven sentinel surveillance sites and seven regional DNA fingerprinting laboratories were selected to participate with CDC in this project. The participating sentinel surveillance sites include Arkansas, California (Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Solano counties), Maryland, Massachusetts, Michigan, New Jersey, and Texas (Dallas, Tarant, Cameron, and Hidalgo counties). The participating regional DNA fingerprint laboratories are the Alabama Department of Health, Montgomery, subcontracting with the University of Alabama, Birmingham; John L. McClellan Memorial Veterans Hospital, Little Rock; California Department of Health Services, Berkeley; Michigan Department of Community Health, Lansing; New York State Department of Health, Wadsworth Center, Albany, and a subcontract with the Public Health Research Institute, New York; and the Texas Center for Infectious Diseases, San Antonio.

The project's goals include determining 1) the relative frequency of *M. tuberculosis* strains based on DNA fingerprint patterns in specific geographic areas; 2) the extent of spread of related *M. tuberculosis* strains in communities; 3) the geographic mobility of persons with related *M. tuberculosis* strains and the mode(s) in which they spread infections; and 4) the relatedness of *M. tuberculosis* isolates in patients identified as high risk for TB. Data from the study will also be used to enable local TB controllers to identify similar *M. tuberculosis* strains and to assess the use of DNA fingerprinting in guiding TB control activities. ■

IDEA Place

This column highlights innovative infectious disease education / communication programs.

On October 23, 1997, CDC and NCID's Division of Bacterial and Mycotic Diseases (DBMD) will launch an education campaign to inform the public that the bacterium *Helicobacter pylori* causes most gastric ulcers and that most can be cured by taking certain antibiotics.

To prepare for this campaign, DBMD's Foodborne and Diarrheal Diseases Branch worked with two organizations, Westat, Inc. and Prospect Associates, who were experienced in conducting formative research for health education efforts. Based on research results, education materials were developed for both consumers and providers. These materials include a consumer brochure, a physician fact sheet, a poster for waiting rooms, a print public service announcement (PSA), and two 30-second TV and radio PSAs. A toll-free number and Internet web site have have been developed to provide information about *H. pylori* as well. CDC is also collaborating with CVS Pharmacy to create a pharmacists' kit that will help pharmacists talk with their clients more effectively about *H. pylori* and peptic ulcer disease.

To get the campaign under way, an educational symposium will be held with members of the media to provide scientific background on *H. pylori* and peptic ulcer disease. Prospect Associates and CDC's Office of Communication will then work with the national media to implement public service announcements about this issue. An ongoing evaluation of the campaign is also planned. For further information, contact Barbara Govert, 404-639-4740. ■

Julia Smith
Division of Bacterial and Mycotic Diseases

DHHS awards presented

The DHHS Secretary's Award for Distinguished Service was recently awarded to CDC's Guinea Worm Eradication Project and *Cyclospora* Response Team. The Guinea Worm Eradication Team was cited for "outstanding contributions to the global dracunculiasis (Guinea worm) eradication effort." The *Cyclospora* Response Team was honored "for protecting the health of the U.S. public and contributing to food safety through investigation and control of a multistate outbreak of cyclosporiasis in 1996."

***Cyclospora* Response Team**: Marta-Louise Ackers (EIS), Edith M. Alfano (DPD), Michael J. Arrowood (DPD), Constance C. Austin (EIS), Imani Bailey (OD), Ben J. Barnett (EIS), Mary E. Bartlett (DPD), Michael J. Beach (DPD), Denise H. Benkel (EIS), Suzanne Binder (DPD), Jacquelyn K. Bramblett (DPD), Victor M. Caceres (EIS), Ralph S. Caraballo (EIS), Rosalind J. Carter (EIS), Debra Chew (EIS), Daniel G. Colley (DPD), Scott A. Damon (DPD), Hercules DeMoura (DPD), B. Sue Dillard (DPD), Kimberley B. Donaldson (DPD), Mark L. Eberhard (DPD), Annie Fine (EIS), Karen L. Foster (EPO), Richard A. Goodman (EPO), Barbara L. Herwaldt (DPD), Allen W. Hightower (DPD), Diane S. Holley (OD), Robert J. Howard (OD), James M. Hughes (OD), Margaret R. Hurd (DPD), David C. Johnson (EPO), Dennis D. Juranek (DPD), Dolores J. Katz (EIS), Eva M. Kovacs-Nace (DPD), Michael H. Kramer (DPD), William R. MacKenzie (EPO), Susanna K. McConnell (DPD), Patrick J. McConnon (OD), Dorothy C. McCormick (DPD), Mark L. Messonnier (EPO), Thomas R. Navin (DPD), Deborah B. Nixon (DPD), Stephen M. Ostroff (OD), Norman J. Pieniazek (DPD), Morris E. Potter (DBMD), Jacquelin M. Roberts (DPD), Roger L. Shapiro (DBMD), Thomas W. Skinner (Office of Communication, CDC), Susan B. Slemenda (DPD), David L. Swerdlow (DBMD), Robert V. Tauxe (DBMD), Govinda S. Visvesvara (DPD), Susanne P. Wahlquist (DPD), Caran R. Wilbanks (EPO), Jonathan P. Winickoff (DBMD).

Guinea Worm Eradication Team: David A. Ashford (EPO), Theodore M. Bailey (DPD), Michael J. Beach (DPD), Henry S. Bishop (DPD), Kelly E. Bussell, Jr. (EPO), Barnett L. Cline (DPD), Roscoe C. Cox (IHPO), C. Wayne Duncan (NCHSTP), Mark L. Eberhard (DPD), Stephen A. Fitzgerald (NCHSTP), Robert T. Follas (NCHSTP), Susan M. Graham, James E. Herrington, Jr. (DVBID), Barbara L. Herwaldt (DPD), Allen W. Hightower (DPD), Donald R. Hopkins (Global 2000), Melissa C. Hubbert (NCHSTP), Dennis D. Juranek (DPD), S. Patrick Kachur (DPD), Robert L. Kaiser (DPD, deceased), Karl D. Kappus (DPD), Michael H. Kramer (DPD), Mark D. LaPointe (DPD), John R. Lehnherr (NCHSTP), Rita M. Malkki (IHPO), Patrick J. McConnon (OD), Richard D. Miller (NCHSTP), David B. Nelson (NIP), Phuc Nguyen-Dinh (DPD), Monica E. Parise (DPD), Kathleen A. Parker (NCHSTP), Mark J. Pelletier (NCHSTP), Michael L. Qualls (NCEH), Raymond L. Ransom (NCHSTP), Frank O. Richards, Jr. (DPD), Jacquelin M. Roberts (DPD), Trenton K. Ruebush II (DPD), Ernesto Ruiz-Tiben (Global 2000), Peter M. Schantz (DPD), Paul Z. Siegel (NCCDPHP), Debbie A. Smith (HRMO), Michael R. Street (retired), Virginia G. Sturwold (IHPO), James J. Sullivan (DPD), Jason S. Weisfeld (IHPO), Sara V. Wallace (DPD), Aaron K. Zee (NCHSTP), James A. Zingeser (Global 2000). ■

PHOTO: Mary Bartlett

Karl Kappus and Barbara Herwaldt, DPD, accepted the Secretary's Award for Distinguished Service from Donna Shalala for the Guinea Worm Eradication Team and the Cyclospora *Response Team, respectively, in May in Washington, D.C.*

NEWS BRIEFS

Hepatitis C videoconference set for November

A live, interactive videoconference course for health care providers, "Hepatitis C: Diagnosis, Clinical Management, Prevention," will be held on November 22, 1997. Sponsored by the Hepatitis Branch, Division of Viral and Rickettsial Diseases, along with the Hepatitis Foundation International and the Public Health Training Network, the course will be broadcast from CDC to approximately 600 sites throughout the United States and Puerto Rico.

The videoconference is designed to educate participants about the natural history of HCV infection, risk factors, appropriate serologic and laboratory tests used to diagnose and evaluate HCV- infected patients, treatment options, and the most effective methods for counseling patients. The cost for the course is $25. Registration procedures and additional information can be found on the Hepatitis Branch home page (www.cdc.gov/ncidod/diseases/hepatitis/hepatitis.htm) and the Hepatitis Foundation International web site (www.hepfi.org). For additional information, call Louise Barden at 404-639-2709.

Emerging infectious diseases conference to be held in Atlanta

NCID and partner agencies and organizations are sponsoring the International Conference on Emerging Infectious Diseases in Atlanta, March 8-12, 1998, to exchange scientific and public health information on global emerging infectious disease issues. The deadline for submission of abstracts is October 31, 1997. For more information and conference registration materials, see the web site of the American Society for Microbiology, www.asmusa.org, or call 202-942-9248.

Scholarship fund created in honor of late CDC scientist

The Southeastern Branch of the American Society for Microbiology has established a student travel scholarship fund in honor of CDC biochemist Dr. Leo Pine, who died in 1994. For more information, contact Gregory Stewart, State University of West Georgia, Dept. of Biology, Carrollton, GA 30118-6300. ■

Focus on Quarantine

New emphasis on surveillance and epidemiology in DQ

Although the mission of the Division of Quarantine (DQ) traditionally has been preventing infectious diseases from being imported across U.S. borders, the division has expanded its program priorities to include decreasing morbidity and mortality from infectious diseases in high risk migratory populations. Through a proposed new Surveillance and Epidemiology Branch, headed by Marty Cetron, the division will establish and maintain surveillance systems that will enable researchers to define epidemiologic risks for such mobile populations as immigrants, refugees, and international travelers.

(L-R) Barawan elder, Stephanie Ostrowski, DQ, Mohammed Abdi, cultural orientation officer with the International Organization for Migration, Loretta O'Brien, Air Force Medical Officer, and Heather Boyd, DQ.

After DQ's first EIS Officers (Joy Miller and Suzanne Zane) joined the division in July, they were quickly sent out on field investigations. Dr. Miller traveled to Mombasa, Kenya, to assist in the medical screening of 4,000 Somali refugees being admitted to the United States. Dr. Zane investigated a cluster of rubella infections among crew members on a cruise ship sailing international waters. Both of these investigations provided opportunities to apply traditional epidemiologic methods of surveillance to define the risk of illness among selected populations and to recommend control measures to prevent the geographic dissemination of disease.

Both investigations also are grounded in the spirit of collaboration on which DQ has traditionally relied. For the rubella outbreak, DQ is collaborating closely with the National Immunization Program (NIP) to develop interim public health interventions. The situation of the Somali refugees illustrates part of DQ's evolving mission. In addition to screening for the legally mandated "excludable" conditions (e.g., tuberculosis, HIV, STDs, leprosy), DQ coordinated screening for other conditions (e.g., malaria, schistosomiasis, and intestinal parasitic infections) in collaboration with other NCID divisions, as well as NIP. A varicella outbreak in the refugee camp provided an opportunity to describe the epidemiology of this disease in a tropical region. Serosurveys are planned to test the observation that the epidemiology of varicella in the tropics differs from that in the United States, with a larger proportion of the adult population susceptible to disease.

With staff stationed at quarantine stations as well as at headquarters, DQ is well prepared to serve as a key link for NCID's global surveillance activities. With a focus that is population-specific rather than pathogen-specific, DQ's role is evolving along with the expanding movements of populations.

As Dr. Cetron expressed it, "Bugs know no borders." ■

Focus on Global Health

Denver Summit

At the Denver Summit in June 1997, the group of eight industrialized nations (Britain, Canada, France, Germany, Italy, Japan, United States, with Russia added this year) fulfilled their 1996 Lyon pledge to take further steps to protect the global community from infectious diseases. They agreed to coordinate their efforts in three critical areas:

Developing a global disease surveillance network. They will strengthen their domestic efforts, share information, and support the efforts of the World Health Organization and other international organizations in developing a global surveillance network for emerging infectious diseases. They will intensify ongoing efforts to inventory existing surveillance networks, harmonize approaches to disease surveillance, monitor antimicrobial resistance, and improve and link WHO's collaborating centers.

Coordinating the international response to outbreaks of infectious disease. They will work with WHO to assess existing capabilities and establish response policies and procedures to outbreaks. Each of the eight nations will establish a point of contact to work together and ensure effective communication in response to outbreaks, including efforts to ensure adequate supplies of drugs, vaccines, diagnostics, and other essential materials.

Building capacity to prevent, detect, and control emerging infectious diseases. The eight nations agreed to reinforce and coordinate their efforts to enhance public health capacity, particularly in developing countries.

James LeDuc
Associate Director for Global Health
NCID

Focus on Bacterial Diseases

Collaborative Alaska study shows high carriage rates for *Haemophilus influenzae* type b

A study of carriage of *Haemophilus influenzae* type b (Hib) among Alaska Native children showed that even though a high percentage of children had been vaccinated, 8.4% still carried the organism. This differs from previous studies in other populations, which have shown substantial reduction in both disease and carriage after the introduction of widespread vaccination.

The collaborative study, conducted by the Division of Bacterial and Mycotic Diseases (Karin Galil, EIS, Orin Levine, Gloria Ajello, and Bradley Perkins) and the Arctic Investigations Program (Rosalyn Singleton, Alan Parkinson, Lisa Bulkow, and Ken Petersen), was prompted by the occurrence of 10 cases of invasive Hib disease in Alaska Native children between May 1996 and March 1997.

Although Alaska had experienced high rates of invasive Hib disease in the 1980s, the incidence dropped dramatically among Alaska Natives, as it did in other populations, after routine immunization against Hib was begun in 1991. In other locations, data had suggested that Hib conjugate vaccines acted not only to protect the individual against invasive disease but also to reduce or eliminate carriage, thereby offering "herd immunity."

In 1996, however, the vaccine regimen in Alaska was changed, and children began receiving a different Hib vaccine combined with a diphtheria-tetanus-pertussis vaccine. With this vaccine, the development of antibodies to Hib is more gradual, possibly leaving young infants between 2 and 6 months unprotected. If older children, despite being vaccinated, carry Hib, they could transmit infection to young infants who do not have protective antibodies or are not completely immunized.

Carolyn Zanis, AIP, swabs the throat of a participant.

To determine carriage rates, the CDC investigators tested pharyngeal swabs from 498 Alaska Native children between the ages of 1 and 5 years. Forty-five children (9%) carried Hib. The prevalence of Hib varied by village, from 2.4% to 13.3%, and by age group, from 6.1% among 1-year-olds to 14.7% among 5-year-olds. All but one of the carriers had received at least two doses of Hib vaccine.

According to Dr. Levine, "This is the first study to show substantial Hib carriage in a population that has been widely vaccinated with Hib conjugate vaccines." This has important implications for the understanding of herd immunity after widespread Hib vaccination, and previous expectations may not always apply. In Finland, Iceland, England, and Atlanta, studies have consistently shown that widespread vaccination with Hib conjugate vaccines virtually eliminated Hib carriage among young children.

Investigators in NCID are involved in several studies aimed at improving understanding of the epidemiology of Hib carriage and the impact of Hib vaccination on carriage. Recent studies in Kazakhstan and the Dominican Republic have documented high levels of Hib carriage, and studies planned for this fall in Beijing, China, and among the Navajo and Apache tribes in Arizona will assess the potential impact of various vaccination regimens on Hib carriage. Dr. Levine noted, "The success of these studies will help us to refine our strategies for Hib elimination in the United States and clarify our expectations for the impact of Hib vaccines globally." ■

Focus *is distributed bimonthly to National Center for Infectious Diseases (NCID) staff and CDC colleagues and constituents by Editorial Services, Office of Health Communication, NCID.*

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Visit the National Center for Infectious Diseases on the World-Wide Web at: http://www.cdc.gov/ncidod/ncid.htm

News Makers

Staff Changes

Ken Fortune has joined NCID as funding resource specialist, OAS. He will be assisting with extramural programs (contracts/grants/cooperative agreements) and with technology transfer programs.

Ava Navin joined the staff of DQ in July. She comes to NCID from EPO, where she worked on *MMWR Recommendations and Reports* and *CDC Surveillance Summaries*, as well as publications for the Epidemic Intelligence Service.

Debbie Nixon has assumed the position of administrative officer, DQ. She comes to DQ from DPD, where she served in a similar position for the last 3 years and in other administrative positions with DPD for the last 20 years.

Siobhan O'Connor has joined NCID on a 1-year ORISE Fellowship. She will be working on issues related to the potential role of microbes in chronic diseases and helping assess the global burden of disease report.

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